

REMARKS

The present invention addresses the problem of requiring consumers to use separate discs when viewing high-definition movie (HDMV) videos, and when using interactive video media content, such as in Blu-Ray media. Traditionally, HDMV videos are stored on high-definition discs, while Blu-Ray content is stored on Blu-Ray discs. A user cannot have a HDMV experience that involves a high level of user interactivity, such as storyline selection and various types of viewing customization, which can be found on Blu-Ray media.

Our invention provides a recording medium, such as a DVD, that is capable of being read in both HDMV mode and Blu-Ray mode. Our invention allows for the concurrent development of both HDMV and Blu-Ray technology on the same medium, which can lead to videos and movies with a high level of user interactivity and user customization.

As can be appreciated not only in the prior art cited, but further by the widespread use of digital video recording and playback, especially with the increased popularity of the Blu-Ray video format, this is a highly competitive electronics field with large companies, employing scientists and engineers, attempting to seek competitive improvements. In this environment, improvements that further our design goals have a significant impact and should be considered in determining the obviousness of the present invention.

“Thus when differences that may appear technologically minor nonetheless have a practical impact, particularly in a crowded field, the decision-maker must consider the obviousness of the new structure in this light.”

Continental Can Co. USA Inc. v. Monsanto Co., 20 U.S.P.Q. 2d. 1746, 1752 (Fed. Cir. 1991).

The Office Action rejected Claims 1 and 6-10 under 35 U.S.C. §101 as being directed to non-statutory subject matter.

The Office Action states that “Claims 1 and 8-10 [are directed] to information on a medium...the information does not provide any functional interrelationship to the medium to read out the information.” (Office Action, Page 2). Applicant has cancelled Claim 1 and added Claim 14 to recite the functional interrelation of the information and the means in Applicant’s playback apparatus.

As recited in Claim 14, the index table is read by the module manager. Next, a title is selected by a user operation, and the operation mode object corresponding to the selected title in the index table is transmitted to the virtual machine. The first mode corresponds to a HDMV mode, and the second mode corresponds to a Blu-Ray Java (BD-J) mode. The second mode is an operation mode that operates on the basis of an application written in an object-oriented language, and is executed by the virtual machine platform unit. (Specification, Page 14, Line 6 to Page 19, Line 27).

Each operation mode object includes an application management table. The application management table includes a run attribute corresponding with the application that is to be loaded into the virtual machine platform unit when the corresponding operation mode object is transmitted to the execution module for the second mode. Since the contents of the application management table are defined in this way, the virtual machine platform unit can load an application on the basis of the application management table. (Specification, Page 33, Line 23 to Page 34, Line 1).

Claim 14 is consistent with the requirements of MPEP §2106.01, “Descriptive material can be characterized as either ‘functional descriptive material’ or ‘nonfunctional descriptive

material.” Unlike music, literary works, and a compilation or mere arrangement of data which qualify as “nonfunctional descriptive material,” the playback apparatus (i.e. the module manager and the virtual machine platform unit) imparts functionality by reading the information recorded on the recording medium (i.e. the index table, the operation mode objects, and the application management table). Thus, the recording medium including the particular features of the playback apparatus and the recorded information as recited in Claim 14 is clearly not music, a literary work, or a compilation or a mere arrangement of data, but is functional descriptive material.

See MPEP §2106.01 (Revision 6 of Eighth Edition, September 2007) which states:

“Both types of “descriptive material” are nonstatutory when claimed as descriptive material *per se*, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1954) (discussing patentable weight of data structure limitations in the context of a statutory claim to a data structure stored on a computer readable medium that increases computer efficiency) and *In re Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) [emphasis added]”

Thus, independent Claim 14 clearly recites functional descriptive material (the playback apparatus and the recorded information) which produces a useful, concrete and tangible result (e.g., provides a video output on a display device as a result of the recorded information being processed by a playback apparatus). As such, it is submitted that independent Claim 14 clearly recites statutory subject as per *In re Warmerdam* and *In re Lowrey* as discussed in MPEP §2106.01.

The Office Action states that Claim 6 is directed “to a program without specifying the location of the program.” (Office Action, Page 2). Applicant has canceled Claim 6 and added Claim 15 to recite “a computer-readable recoding medium on which is recorded a program executed by a computer.”

The Office Action states that Claim 7 that “there are no positive processing steps recited in the claim.” (Office Action, Page 2). Applicant has cancelled Claim 7 and added Claim 16 to recite positive processing steps.

Regarding dependent Claims 8-10, they depend from independent Claim 14, which is believed to be patentable.

Applicant respectfully requests that these rejections under 35 U.S.C. § 101 be withdrawn.

The Office Action rejected Claims 1-12 as being unpatentable over *Murase et al.* (U.S. Patent 5,907,658, hereinafter *Murase*) in view of *Yamaguchi et al.* (U.S. Patent 5,907,659, hereinafter *Yamaguchi*) under 35 U.S.C. §103(a).

Murase addresses the problem of repetitive user selections in interactive software applications, such as an interactive video game. *Murase* stores a user's past selections, and uses these selections to present the user with new scenarios and choices every time the video game is played. In this way, the same storylines are not constantly repeated by the user, allowing the user to maintain interest in the video game even after multiple uses. (*Murase*, Col. 4, Lines 3-38).

With respect to Claim 14, *Murase* fails to disclose an operation mode with a first mode and second mode of operation, “the second mode being a mode in which the playback apparatus operates on a base of an application written in an object-oriented language.”

Murase simply discloses a recording medium that stores a title set including program chain (PCG) information and video objects (VOBs). In *Murase*, VOBs have the same attribute for a title set. (*Murase*, Col. 10, Lines 65-68). A video manager performs management of all title sets in a DVD-video. (*Murase*, Col. 27, Lines 32-45). The video manager determines which of the plurality of titles belonging to each title set is to be played. (*Murase*, Col. 27, Line 48 – Col. 28, Line 8).

Each of the titles includes PCG information. By defining VOB position information, the PCG information designates a VOB group making up one program chain. The PCG information also includes a pre-processing field to access before starting a read of the VOBs that make up the program, and a post-processing field to access after finishing the read of the VOBs that make up the program chain. (*Murase*, Col. 21, Line 20 – Col. 22, Line 25).

The playback mode of *Murase* is different than Applicant's invention. The playback apparatus of *Murase* performs playback operations based on commands contained in the PCG information and the commands contained in the VOB management pack. (*Murase*, Col. 21, Line 20 – Col. 22, Line 25). This mode of operation performs playback on a command base only. *Murase* fails to disclose "a mode in which the playback apparatus operates on a base of an application written in an object-oriented language."

Furthermore, the control of *Murase* is written differently than in Applicant's invention. The playback control of *Murase* is written using commands. (*Murase*, Col. 21, Line 20 to Col. 22, Line 25). Commands used to control playback are not used in an application written in an object-oriented language, such as in Applicant's invention.

Finally, the control that the playback apparatus of *Murase* performs differently than in Applicant's invention. The playback control apparatus of *Murase* has a control unit that

performs operations on a command base. (*Murase*, Col. 21, Line 20 to Col. 22, Line 25). A command base does not instruct a virtual machine platform unit to load an application, and thus does not operate on a base of an application written in an object-oriented language.

In contrast, in the second mode of Applicant's invention, the dynamic control procedure is written in an object-oriented language. The dynamic control procedure is realized by loading an application written in an object-oriented language to a virtual machine platform, and by executing the application on the virtual machine platform. Since the control procedure is written in an object-oriented language, such as Java™, a programmer is able to use an object-oriented programming language to stipulate the control procedure. (Specification, Figs. 7 & 51).

The recording medium of Applicant's invention can be used in a DVD-video playback apparatus or a similar playback apparatus that operates on a command basis. The recording medium causes the playback apparatus operating on the command base to switch modes to the second mode from the first mode. The recording medium then provides the application management table to the virtual machine platform unit via the module manager. By doing this, when playback of a title is instructed by the user, the recording medium can cause the virtual machine platform unit to execute the application written using an object-oriented programming language instead of commands instructing playback control. The playback control can thus be executed by the application.

Operation control of Java™ applications in accordance with service switches, for example, application signaling in accordance with service boundaries, has been introduced in reception apparatuses in European digital broadcasting (DVB-MHP). In the second mode of Applicant's invention, the playback apparatus can be made to execute the control procedure shown by the application in accordance with a title switch due to the application management

table being stipulated in the operation mode object. This enables operations of Java™ applications to be controlled in accordance with switching of titles in a playback apparatus. In other words, application signaling is executed in accordance with title boundaries in the playback apparatus.

In the second mode of Applicant's invention, the object-oriented language is not written directly in the operation mode object. Instead, a file written in the object-oriented language is created and stored in an archive file together with various data files. This is provided to the playback apparatus. In this way, the dynamic control that is written in different ways in the two operation modes are treated equally, with processing being carried out differently in each of the two modes so that a certain level of operation is maintained regardless of which of the modes the dynamic control is executed in. A certain level of operation can be maintained whether the dynamic control is transplanted from DVD-video or from MHP-DVB. This means that both the authors involved with the creation of DVD-video and the developers of applications for DVB-MHP can participate in the creation of programs for movie works, thus leading to the enhancement of movie works. It is the operation mode of Applicant's invention that leads to the enhancement of movie works by allowing applications written in an object-oriented language to be executed in a playback apparatus that operates on the premise of a command base.

Furthermore, Applicant's invention includes an operation mode capable of processing Blu-Ray content. (Specification, Page 14, Line 6 to Page 19, Line 27). Blu-Ray technology was first unveiled to the public in October 2000, and the first commercially available Blu-Ray player was not available until April 2003. (See http://en.wikipedia.org/wiki/Blu-ray_Disc). *Murase* represents technology from 1995 that was able to take advantage of DVDs with expanded

memory in optical disks, but does not specifically refer to a playback apparatus with Blu-Ray processing technology.

The Office Action cites to *Yamaguchi* to supplement the deficiencies in *Murase*.

Yamaguchi addresses the problem of subtitle displacement on conventional television screens when the video information is adapted for display on a wide-screen television. (*Yamaguchi*, Col. 3, Lines 15-20). *Yamaguchi* combines a main video image and a sub-picture prior to converting the wide-screen adapted information into a conventional television screen format. This overcomes the problem of subtitle displacement, and users are able to read entire subtitles, without lost or distorted characters and words when viewed on a conventional television screen. (*Yamaguchi*, Col. 4, Lines 18-39).

With respect to Claim 14, *Yamaguchi* fails to disclose an operation mode with a first mode and second mode of operation, “the second mode being a mode in which the playback apparatus operates on a base of an application written in an object-oriented language.”

Yamaguchi discloses a recording medium that stores a plurality of VOBs that include a plurality of pieces of sub-picture data, and PCG information that contains mapping information. This mapping information indicates a display mode for each aspect ratio, such as 16:9 and 4:3, that moving picture data may be displayed in. The mapping information also indicates coordinate information corresponding to the aspect ration. The VOBs and the PCG information are part of titles. Titles having a same video attribute constitute a title set. (*Yamaguchi*, Col. 9, Line 35 to Col. 10, Line 13).

The playback mode of *Yamaguchi* is different than Applicant's invention. The playback apparatus of *Yamaguchi* performs playback operations based on commands contained in the PCG information. (*Yamaguchi*, Col. 30, Lines 1-13). This mode of operation performs playback on a

command base only. *Yamaguchi* fails to disclose “a mode in which the playback apparatus operates on a base of an application written in an object-oriented language.”

Furthermore, the control of *Yamaguchi* is written differently than in Applicant's invention. The playback control of *Yamaguchi* is written using commands. (*Yamaguchi*, Col. 9, Line 35 – Col. 10, Line 13). Commands used to control playback are not used in an application written in an object-oriented language, such as in Applicant's invention.

Finally, the control that the playback apparatus of *Yamaguchi* performs differently than in Applicant's invention. The playback control apparatus of *Yamaguchi* has a control unit that performs operations on a command base. (*Yamaguchi*, Col. 9, Line 35 to Col. 10, Line 13). A command base does not instruct a virtual machine platform unit to load an application, and thus does not operate on a base of an application written in an object-oriented language.

In contrast, in the second mode of Applicant's invention, the dynamic control procedure is written in an object-oriented language. The dynamic control procedure is realized by loading an application written in an object-oriented language to a virtual machine platform, and by executing the application on the virtual machine platform. Since the control procedure is written in an object-oriented language, a programmer is able to use an object-oriented programming language to stipulate the control procedure. (Specification, Figs. 7 and 51).

With respect to Claims 13, and 15-17, all arguments for patentability with respect to Claim 14 are repeated and incorporated herein.

The Office Action contended that it would have been obvious to modify the *Murase* reference with a teaching of the *Yamaguchi* reference to include “an index generating means as taught by *Yamaguchi* for generating an index table that shows a correspondence between the titles and management information tables thereby easily controlling the playback of the titles.”

(Office Action, Page 4). *Murase* meant to allow a repeat user to experience a unique game play each time the user played an interactive video game. This was accomplished by storing past user selections and using this information to present new scenarios and choices which the user has not yet selected. Other features are presented in the *Murase* reference but they are no more relevant than the disclosure in *Yamaguchi* as far as providing the improvement now set forth in Applicant's claims.

Additionally, there was no articulated reason why a person of skill in the field would combine these two references in the manner asserted in the Office Action rejection.

It is the Examiner's burden to establish *prima facie* obviousness. See *In re Rijckaert*, 9 F.3d 1531, 1532 (Fed. Cir. 1993) Obviousness requires a suggestion of all the elements in a claim (*CFMT, Inc. v. Yieldup Int'l Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003)) and "a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007). Here, we find that the Examiner has not identified all the elements of claim 1, nor provided a reason that would have prompted the skilled worker to have arranged them in the manner necessary to reach the claimed invention.

Ex parte Karoleen B. Alexander, No. 2007-2698, slip op. at 6 (B.P.A.I. Nov. 30, 2007).

Applicants respectfully traverse this combination since it is believed to be unobvious to combine the technology of *Murase* and the technology of *Yamaguchi*. *Murase* discloses an interactive game system where a user is provided new choices different than past selections. In *Murase*, the user is presented with options as to how to move the game or story forward, as shown in Fig. 19B. In a completely unrelated application of video technology, *Yamaguchi* discloses an optical disc which correctly superimposes multilingual subtitles on a conventional television screen for videos adapted for viewing on a widescreen television screen. A hypothetical combination of these two references would result in an interactive game for

widescreen televisions that provides multilingual subtitle support, with the subtitles properly aligned with the game picture when viewed on a conventional television screen.

It is respectfully submitted that a person of ordinary skill in the field lacking the advantages of hindsight from our present disclosure, would not be led to combining the *Murase* and the *Yamaguchi* references, and even if combined and assuming that their respective functions could be altered as proposed in the Office Action rejection, would still not meet the features of our currently amended claims.

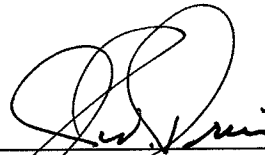
Claims 3-5 and 11-12 depend from Claim 15, and Claims 8-10 depend from Claim 14. The dependent claims add features that more particularly define the invention and further distinguish over the cited references and prior art of record.

It is believed that the case is now in condition for allowance and an early notification of the same is requested.

If there are any questions with regards to this matter, the undersigned attorney can be contacted at the listed phone number.

Very truly yours,

SNELL & WILMER L.L.P.



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